



WELLS RANCH STATE AA27-79HN 1":100'

Company: NOBLE ENERGY
Well Name: WELLS RANCH STATE AA27-79HN
API: 05-123-37717
Rig Id: H&P 277
State: CO
County/Parish: WELD COUNTY
Country: USA
Survey Company: DRILTECH, LLC
Job number: 2013-383-IDDT-CO
MARK LARUE MWD OPERATOR
JOSH CAYLOR MWD OPERATOR

Log measurements:
Depth measured from:
Maximum temperature: 242

Depth Date
Start: 630 ft 12/12/2013
End: 14568 ft 12/20/2013

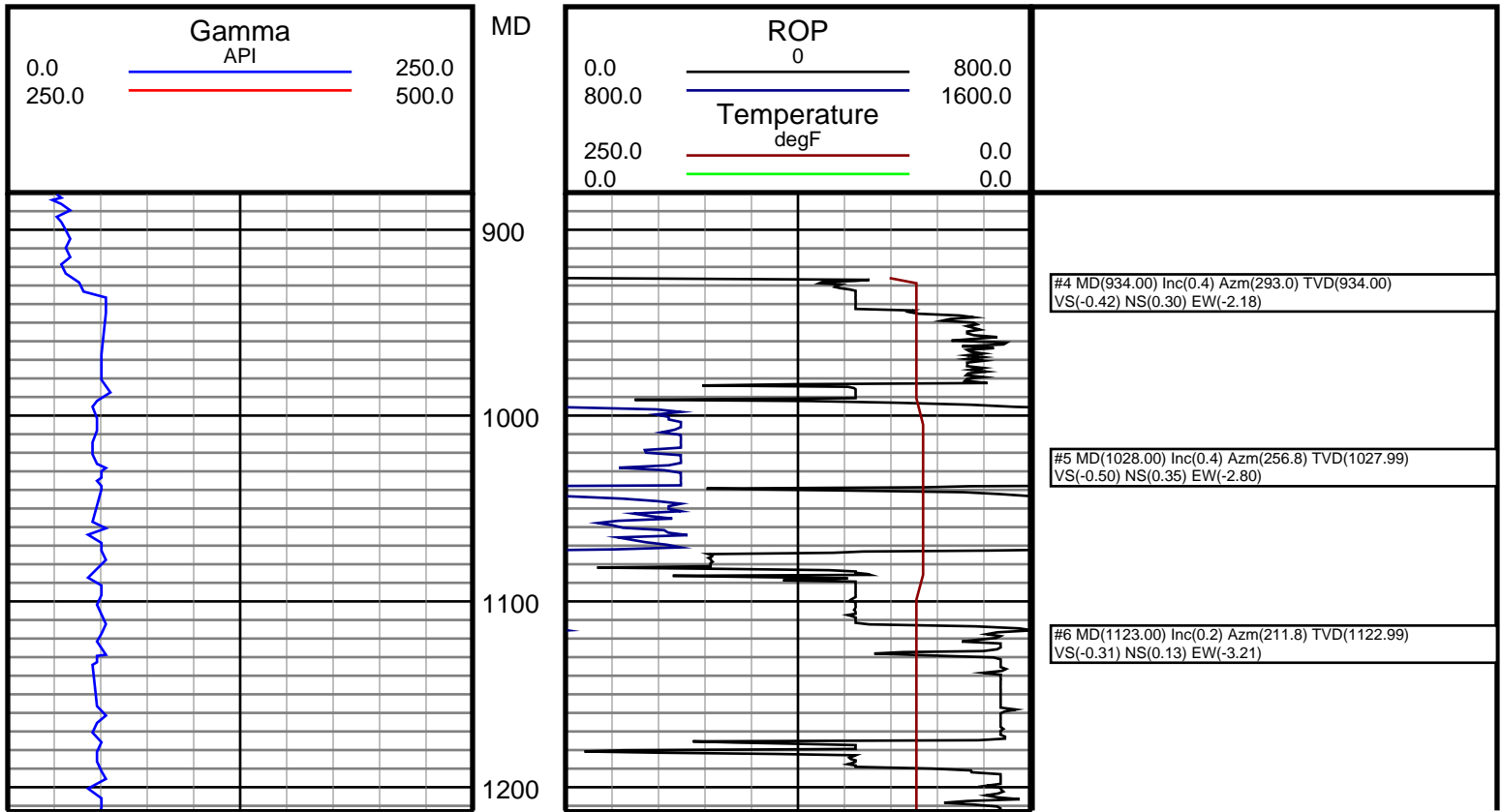
Casing Depth Size
Surface: 916 9.625
Intermediate: 6957 7.0

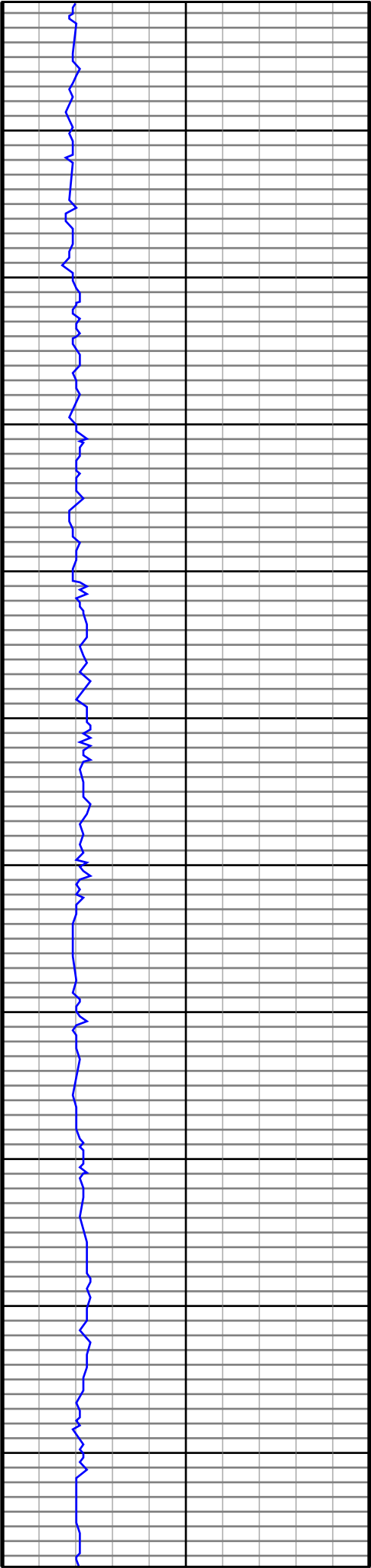
Mud Type: WATER BASE
Density: 9.0
Viscosity: 30
Rm: Rmf: Rmc:

Elevations
KB: 4727
GL: 4727
DF:

Run	Bit Size	Offsets	Gamma Survey	Start	End	Start	End	Dates
1	8 3/4	46.00	58.00	608	6009	12/13/2013	12/14/2013	
2	8 3/4	35.00	47.00	6009	6967	12/14/2013	12/15/2013	
3	6 1/8	42.00	53.00	6967	14568	12/17/2013	12/20/2013	
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DRILTECH, LLC uses its best efforts to provide its customers with accurate information and interpretations in conjunction with services performed but will not be held liable or responsible for the accuracy of such information or interpretation.





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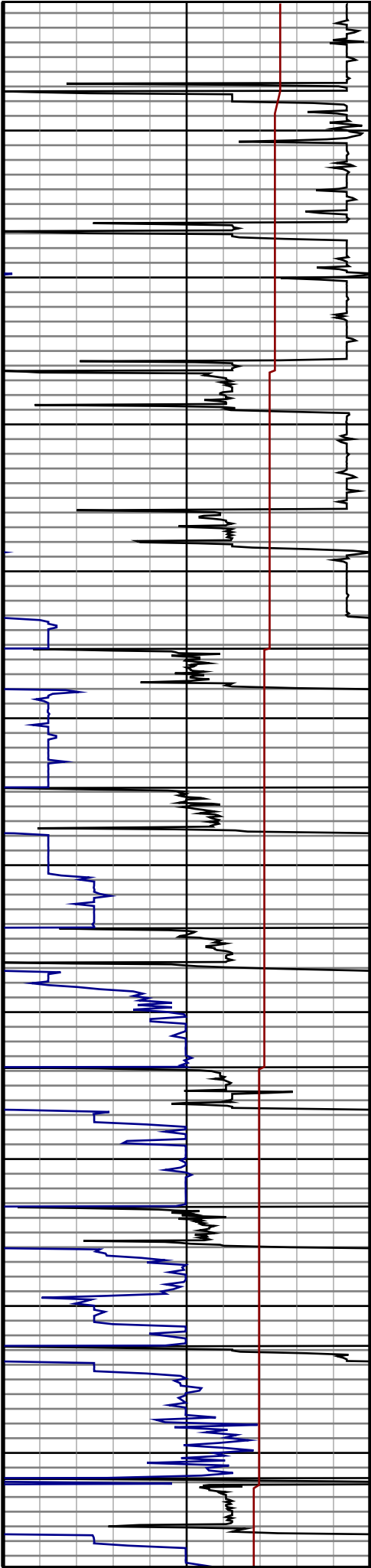
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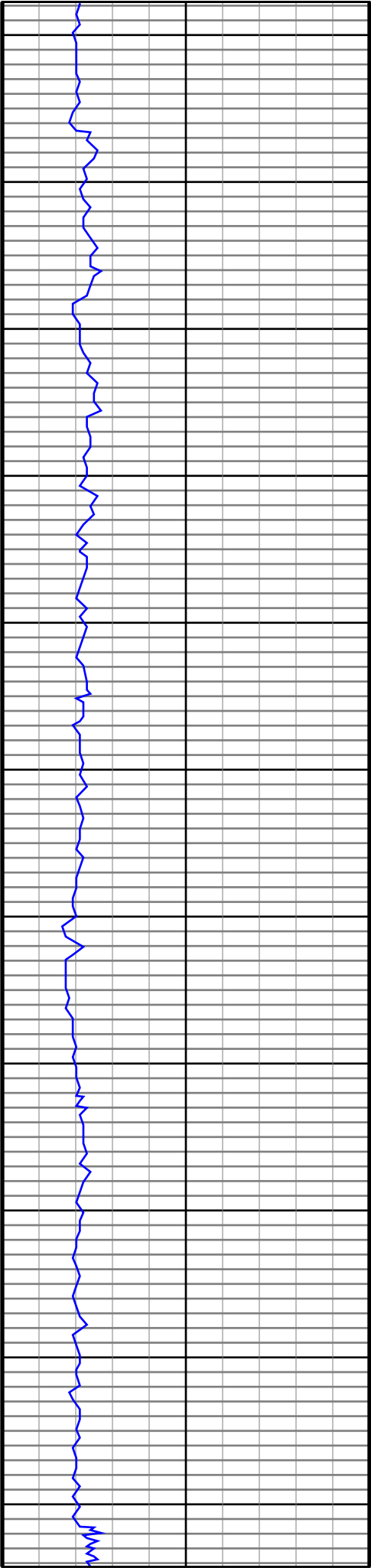
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#7 MD(1217.00) Inc(0.2) Azm(184.5) TVD(1216.99) VS(-0.01) NS(-0.17) EW(-3.31)
#8 MD(1311.00) Inc(0.4) Azm(193.0) TVD(1310.99) VS(0.46) NS(-0.65) EW(-3.40)
#9 MD(1406.00) Inc(0.4) Azm(187.9) TVD(1405.99) VS(1.11) NS(-1.31) EW(-3.52)
#10 MD(1500.00) Inc(2.5) Azm(108.2) TVD(1499.96) VS(2.18) NS(-2.27) EW(-1.62)
#11 MD(1595.00) Inc(4.9) Azm(98.4) TVD(1594.75) VS(3.75) NS(-3.51) EW(4.37)
#12 MD(1689.00) Inc(6.7) Azm(92.4) TVD(1688.27) VS(5.09) NS(-4.33) EW(13.82)
#13 MD(1784.00) Inc(9.5) Azm(91.7) TVD(1782.31) VS(6.31) NS(-4.79) EW(27.19)
#14 MD(1878.00) Inc(11.3) Azm(94.5) TVD(1874.76) VS(8.21) NS(-5.75) EW(44.13)
#15 MD(1973.00) Inc(12.1) Azm(102.6) TVD(1967.79) VS(12.17) NS(-8.65) EW(63.13)
#16 MD(2068.00) Inc(13.0) Azm(110.0) TVD(2060.53) VS(19.09) NS(-14.47) EW(82.89)
#17 MD(2163.00) Inc(12.5) Azm(107.7) TVD(2153.19) VS(26.97) NS(-21.26) EW(102.72)
#18 MD(2257.00) Inc(13.4) Azm(114.9) TVD(2244.80) VS(35.74) NS(-28.93) EW(122.29)



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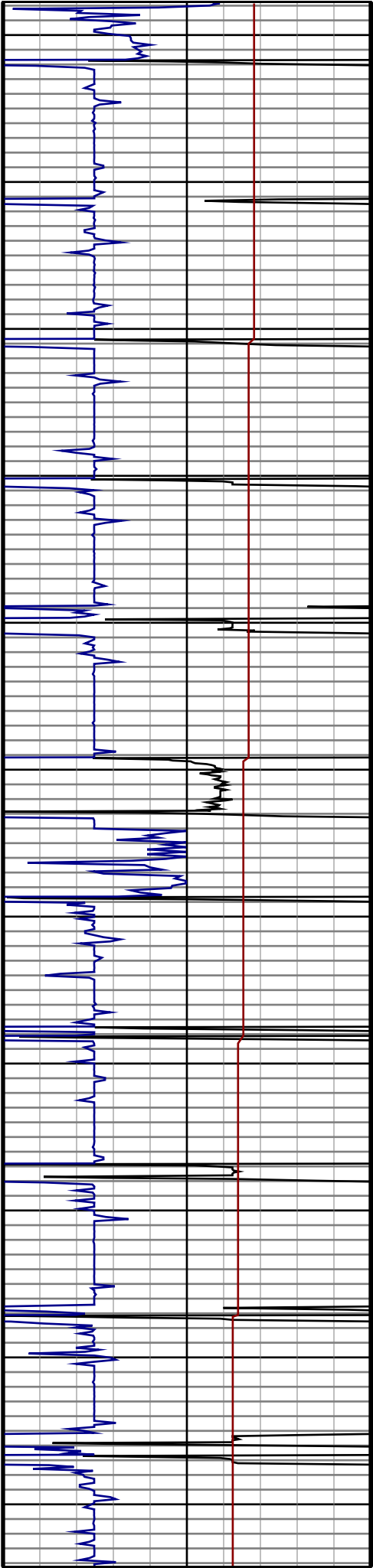
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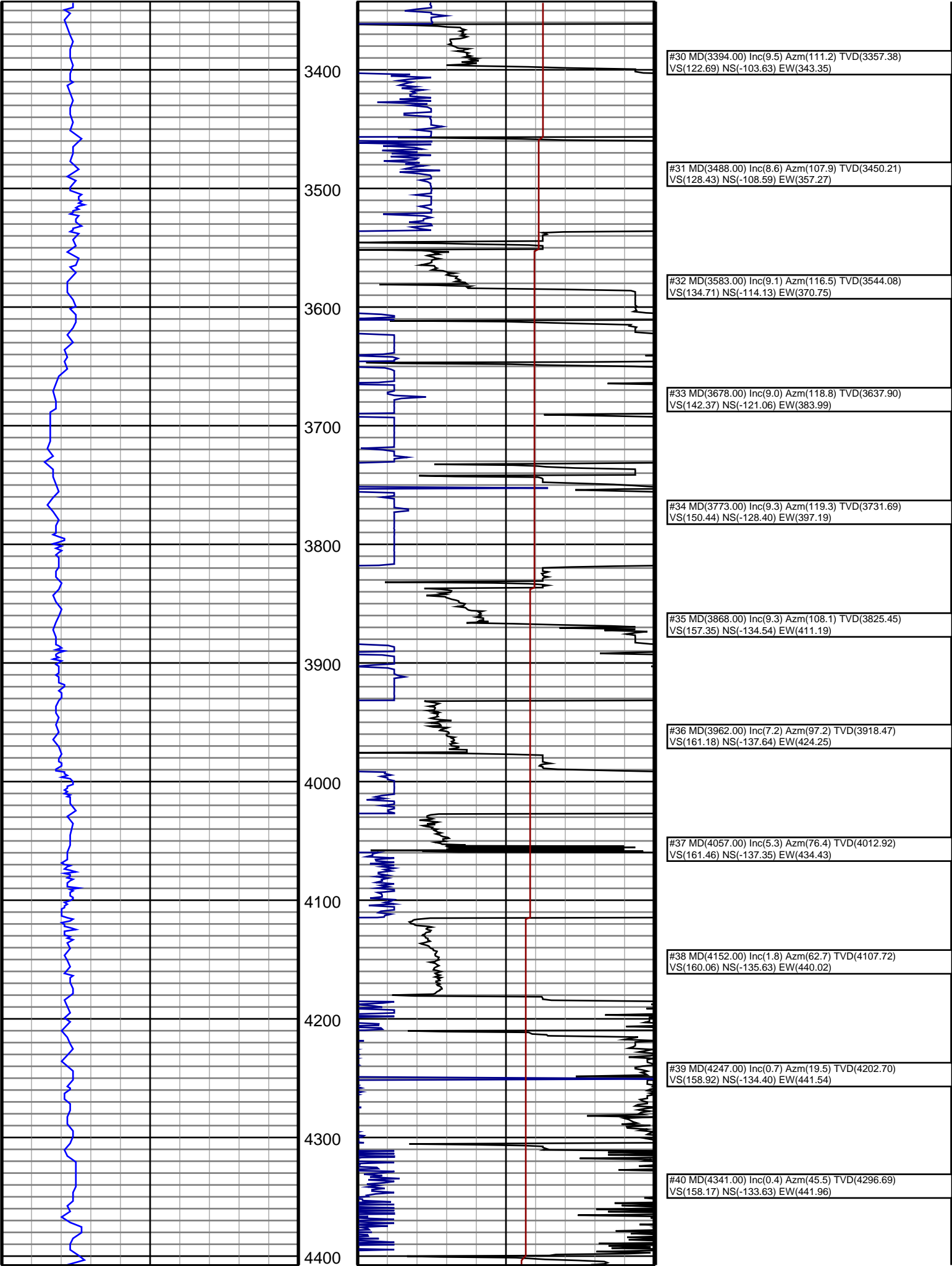
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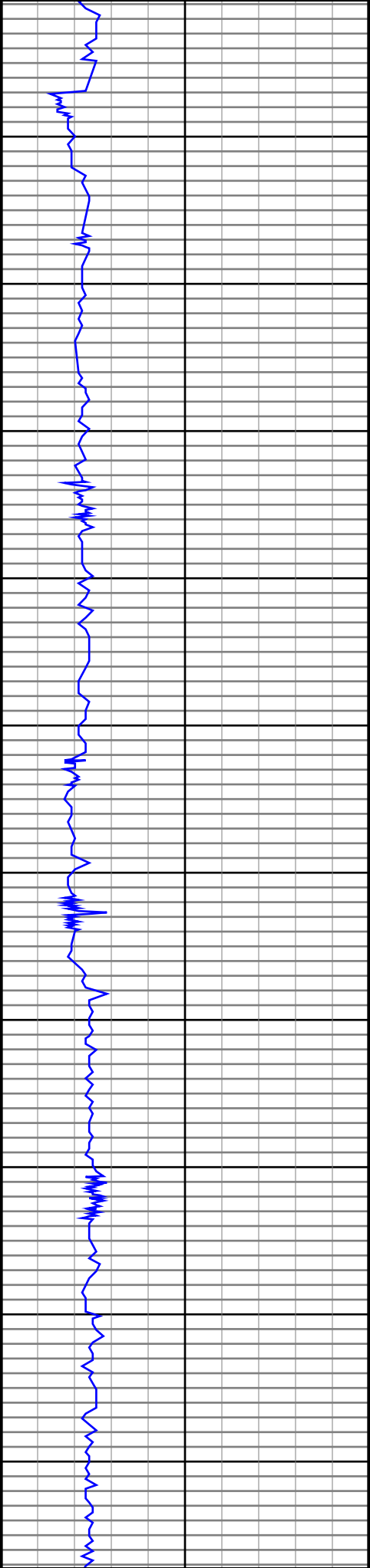
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#19 MD(2352.00) Inc(12.8) Azm(115.1) TVD(2337.33) VS(45.91) NS(-38.03) EW(141.81)
#20 MD(2447.00) Inc(12.1) Azm(113.0) TVD(2430.10) VS(55.30) NS(-46.39) EW(160.50)
#21 MD(2541.00) Inc(11.8) Azm(112.3) TVD(2522.06) VS(63.79) NS(-53.88) EW(178.47)
#22 MD(2636.00) Inc(11.4) Azm(111.9) TVD(2615.12) VS(71.96) NS(-61.07) EW(196.16)
#23 MD(2731.00) Inc(10.9) Azm(111.7) TVD(2708.32) VS(79.73) NS(-67.90) EW(213.22)
#24 MD(2825.00) Inc(12.0) Azm(106.3) TVD(2800.45) VS(86.74) NS(-73.92) EW(230.86)
#25 MD(2920.00) Inc(12.3) Azm(104.9) TVD(2893.33) VS(93.18) NS(-79.30) EW(250.12)
#26 MD(3014.00) Inc(12.7) Azm(104.9) TVD(2985.10) VS(99.50) NS(-84.53) EW(269.78)
#27 MD(3109.00) Inc(12.0) Azm(104.5) TVD(3077.90) VS(105.75) NS(-89.69) EW(289.43)
#28 MD(3204.00) Inc(11.8) Azm(103.8) TVD(3170.86) VS(111.60) NS(-94.48) EW(308.43)
#29 MD(3299.00) Inc(11.3) Azm(102.4) TVD(3263.93) VS(116.95) NS(-98.79) EW(326.95)





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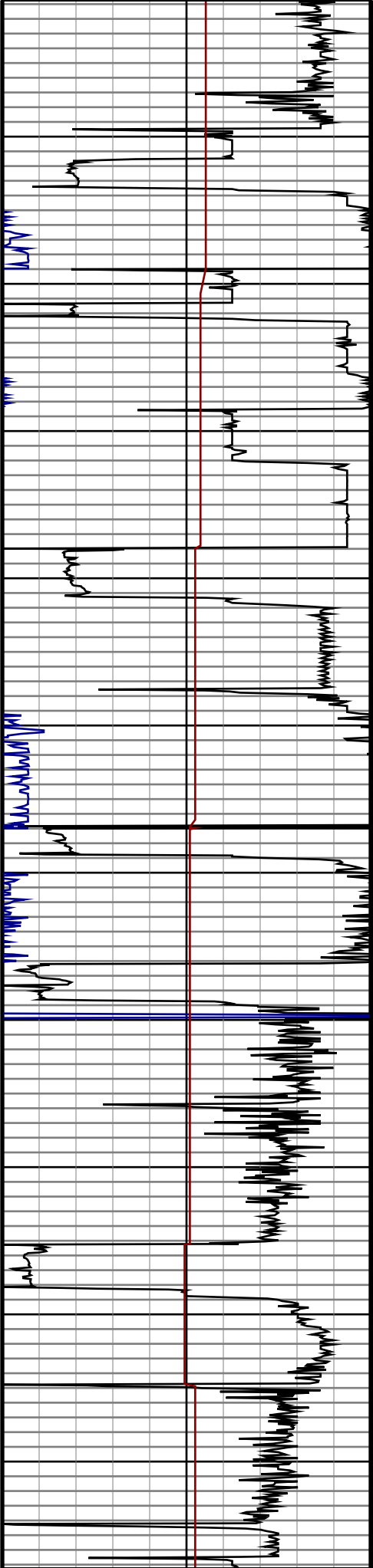
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#41 MD(4436.00) Inc(0.5) Azm(49.0) TVD(4391.69)
VS(157.70) NS(-133.13) EW(442.51)

#42 MD(4531.00) Inc(0.7) Azm(308.6) TVD(4486.69)
VS(157.06) NS(-132.49) EW(442.37)

#43 MD(4626.00) Inc(1.2) Azm(311.3) TVD(4581.67)
VS(155.97) NS(-131.48) EW(441.17)

#44 MD(4720.00) Inc(1.6) Azm(320.6) TVD(4675.65)
VS(154.22) NS(-129.81) EW(439.60)

#45 MD(4815.00) Inc(2.3) Azm(270.6) TVD(4770.60)
VS(153.03) NS(-128.77) EW(436.85)

#46 MD(4909.00) Inc(2.5) Azm(289.6) TVD(4864.52)
VS(152.11) NS(-128.06) EW(433.03)

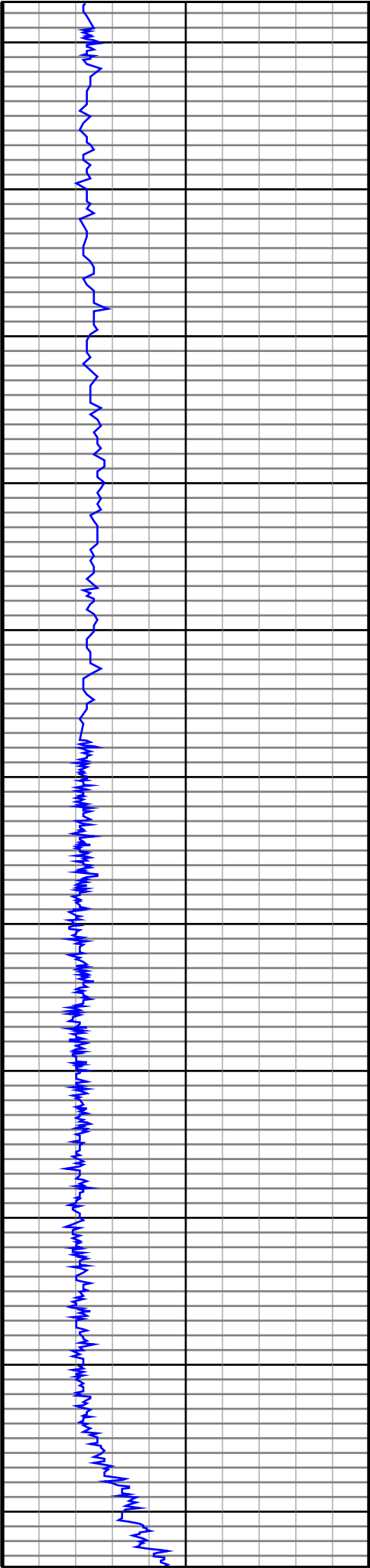
#47 MD(5004.00) Inc(2.8) Azm(256.4) TVD(4959.42)
VS(151.72) NS(-127.91) EW(428.83)

#48 MD(5099.00) Inc(2.1) Azm(249.2) TVD(5054.33)
VS(152.67) NS(-129.07) EW(424.94)

#49 MD(5194.00) Inc(1.8) Azm(245.7) TVD(5149.28)
VS(153.73) NS(-130.31) EW(421.96)

#50 MD(5289.00) Inc(1.8) Azm(194.2) TVD(5244.24)
VS(155.69) NS(-132.37) EW(420.23)

#51 MD(5384.00) Inc(1.4) Azm(185.9) TVD(5339.20)
VS(158.26) NS(-134.97) EW(419.74)



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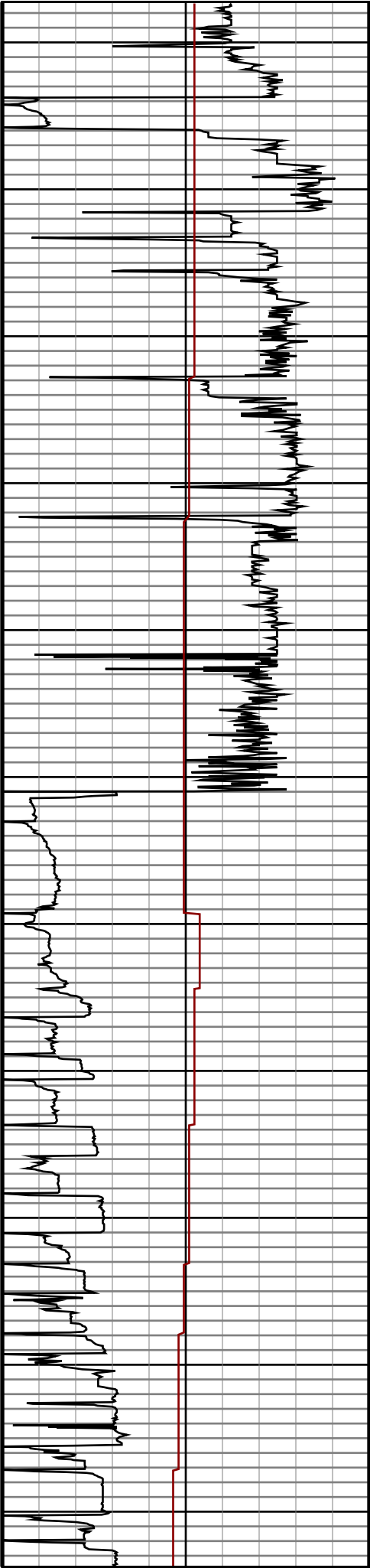
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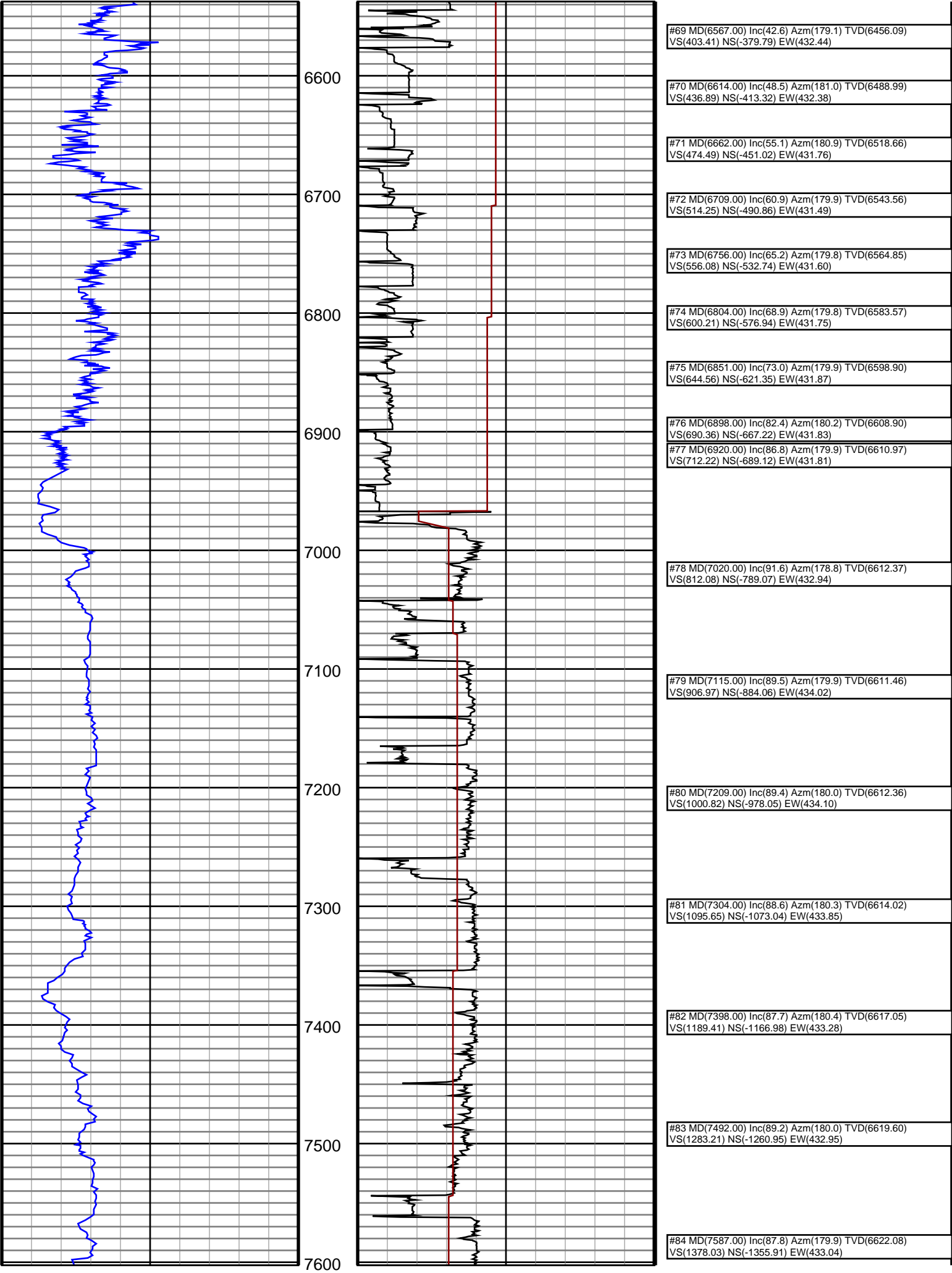
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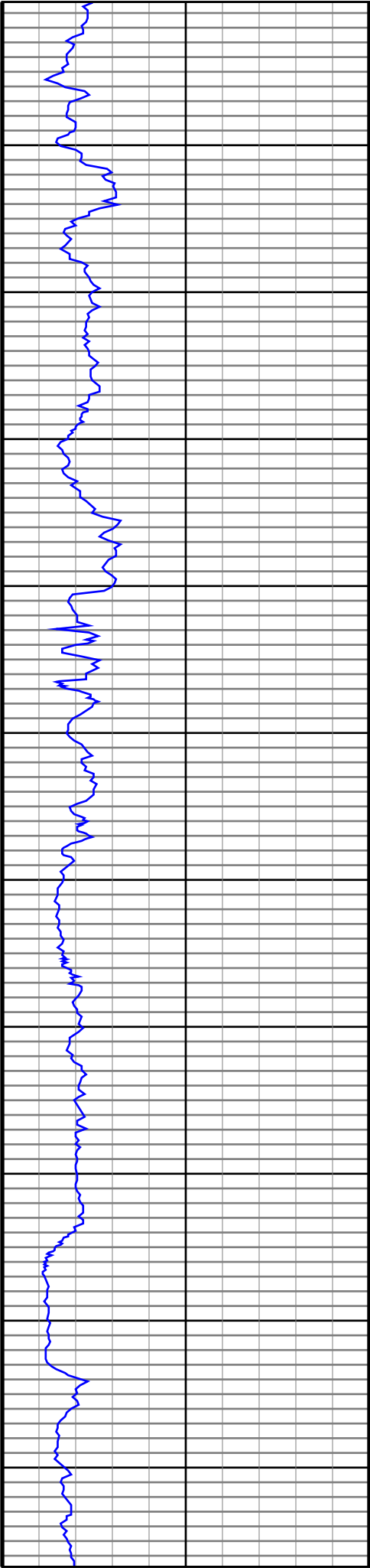
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#54 MD(5668.00) Inc(1.6) Azm(147.8) TVD(5623.11) VS(164.98) NS(-141.60) EW(421.34)
#55 MD(5763.00) Inc(1.2) Azm(139.2) TVD(5718.08) VS(166.92) NS(-143.48) EW(422.69)
#56 MD(5858.00) Inc(0.9) Azm(123.7) TVD(5813.06) VS(168.16) NS(-144.65) EW(423.96)
#57 MD(5953.00) Inc(0.7) Azm(116.0) TVD(5908.05) VS(168.89) NS(-145.32) EW(425.11)
#58 MD(6047.00) Inc(2.7) Azm(189.4) TVD(6002.01) VS(171.33) NS(-147.75) EW(425.26)
#59 MD(6094.00) Inc(10.3) Azm(185.5) TVD(6048.68) VS(176.57) NS(-153.03) EW(424.68)
#60 MD(6141.00) Inc(15.8) Azm(188.9) TVD(6094.45) VS(186.99) NS(-163.55) EW(423.28)
#61 MD(6189.00) Inc(19.4) Azm(184.2) TVD(6140.19) VS(201.29) NS(-177.96) EW(421.69)
#62 MD(6236.00) Inc(23.9) Azm(175.3) TVD(6183.88) VS(218.56) NS(-195.25) EW(421.90)
#63 MD(6284.00) Inc(26.7) Azm(173.4) TVD(6227.27) VS(239.05) NS(-215.65) EW(423.93)
#64 MD(6330.00) Inc(29.0) Azm(173.4) TVD(6267.94) VS(260.50) NS(-237.00) EW(426.40)
#65 MD(6378.00) Inc(32.0) Azm(176.9) TVD(6309.30) VS(284.84) NS(-261.26) EW(428.43)
#66 MD(6425.00) Inc(36.8) Azm(178.0) TVD(6348.07) VS(311.39) NS(-287.78) EW(429.59)
#67 MD(6472.00) Inc(39.5) Azm(177.7) TVD(6385.02) VS(340.41) NS(-316.79) EW(430.69)
#68 MD(6520.00) Inc(42.1) Azm(178.4) TVD(6421.36) VS(371.77) NS(-348.14) EW(431.75)





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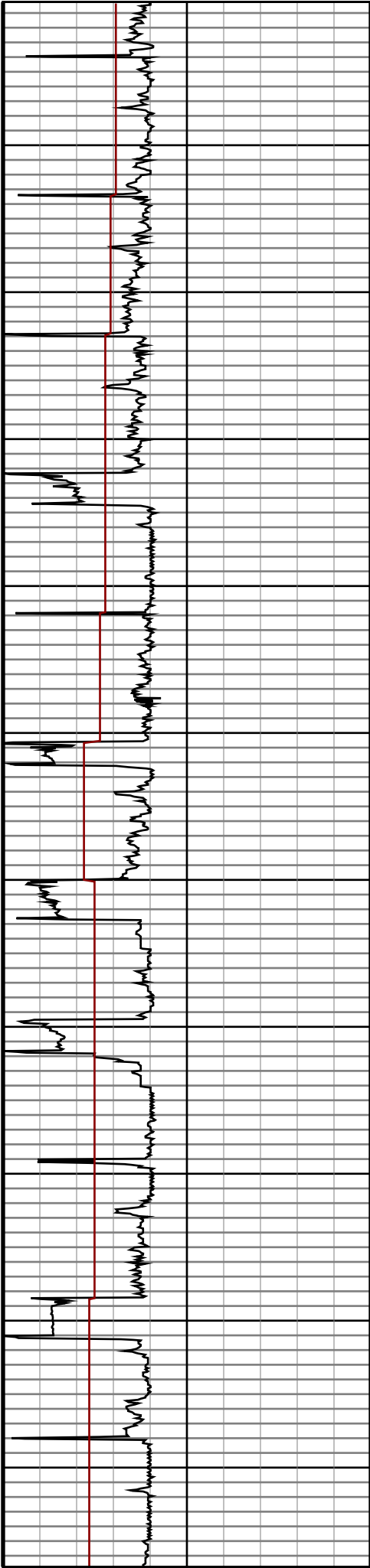
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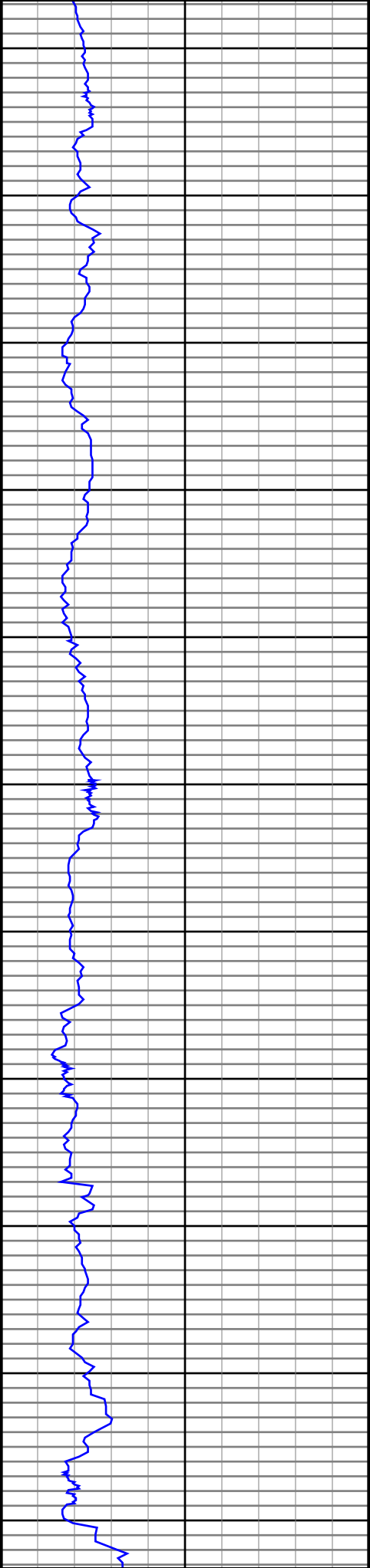
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#85 MD(7682.00) Inc(88.5) Azm(179.6) TVD(6625.15) VS(1472.85) NS(-1450.86) EW(433.45)
#86 MD(7776.00) Inc(89.2) Azm(179.3) TVD(6627.04) VS(1566.73) NS(-1544.84) EW(434.35)
#87 MD(7871.00) Inc(90.2) Azm(178.7) TVD(6627.53) VS(1661.66) NS(-1639.82) EW(436.01)
#88 MD(7965.00) Inc(90.7) Azm(180.0) TVD(6626.79) VS(1755.56) NS(-1733.81) EW(437.08)
#89 MD(8053.00) Inc(92.0) Azm(179.1) TVD(6624.72) VS(1843.43) NS(-1821.78) EW(437.77)
#90 MD(8148.00) Inc(92.2) Azm(179.6) TVD(6621.24) VS(1938.27) NS(-1916.71) EW(438.84)
#91 MD(8243.00) Inc(90.9) Azm(180.7) TVD(6618.67) VS(2033.07) NS(-2011.67) EW(438.59)
#92 MD(8337.00) Inc(89.7) Azm(180.6) TVD(6618.18) VS(2126.85) NS(-2105.66) EW(437.53)
#93 MD(8431.00) Inc(90.5) Azm(180.3) TVD(6618.01) VS(2220.66) NS(-2199.66) EW(436.79)
#94 MD(8525.00) Inc(88.5) Azm(180.2) TVD(6618.83) VS(2314.48) NS(-2293.65) EW(436.38)
#95 MD(8620.00) Inc(89.4) Azm(180.3) TVD(6620.58) VS(2409.29) NS(-2388.63) EW(435.97)



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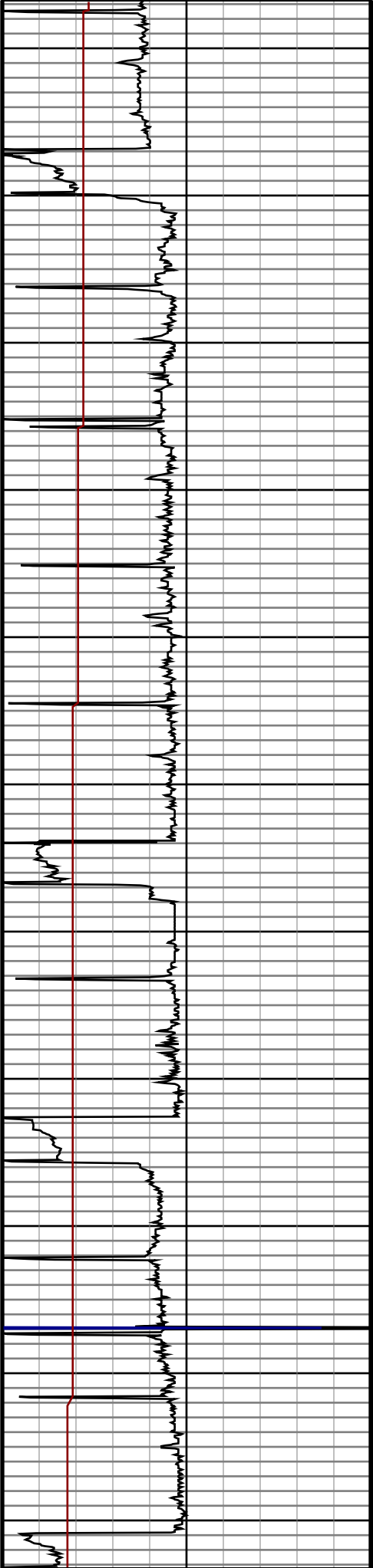
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#97 MD(8807.00) Inc(87.6) Azm(178.9) TVD(6622.20)
VS(2596.02) NS(-2575.60) EW(436.94)

#98 MD(8902.00) Inc(88.1) Azm(178.6) TVD(6625.76)
VS(2690.90) NS(-2670.51) EW(439.01)

#99 MD(8996.00) Inc(89.0) Azm(177.5) TVD(6628.14)
VS(2784.84) NS(-2764.42) EW(442.21)

#100 MD(9089.00) Inc(90.0) Azm(177.5) TVD(6628.95)
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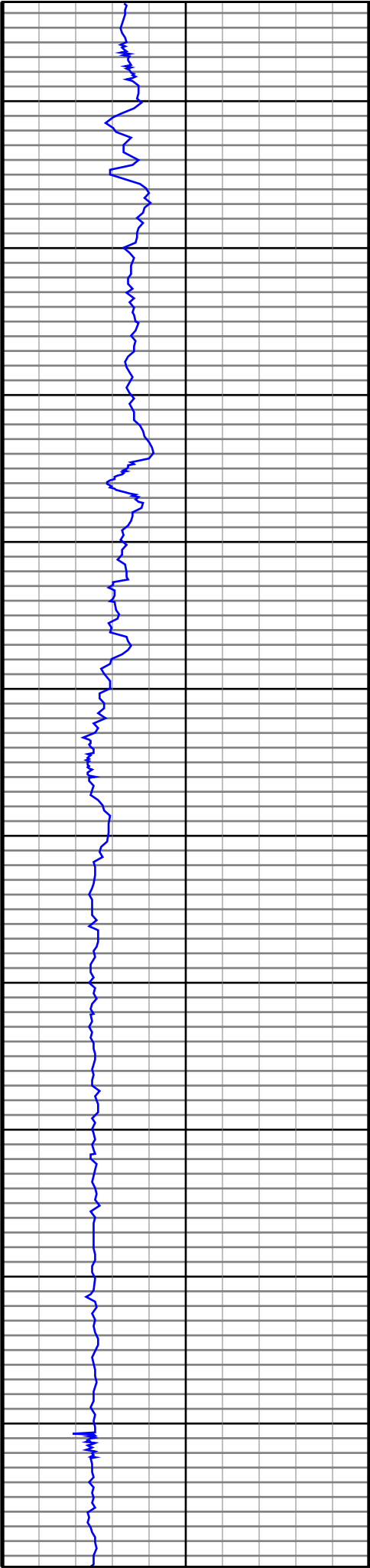
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VS(3067.80) NS(-3047.12) EW(454.72)

#103 MD(9374.00) Inc(90.9) Azm(178.2) TVD(6626.71)
VS(3162.76) NS(-3142.08) EW(457.45)

#104 MD(9469.00) Inc(90.1) Azm(180.9) TVD(6625.89)
VS(3257.64) NS(-3237.06) EW(458.20)

#105 MD(9563.00) Inc(90.6) Azm(180.2) TVD(6625.31)
VS(3351.43) NS(-3331.05) EW(457.29)

#106 MD(9657.00) Inc(91.3) Azm(179.8) TVD(6623.75)
VS(3445.27) NS(-3425.04) EW(457.29)



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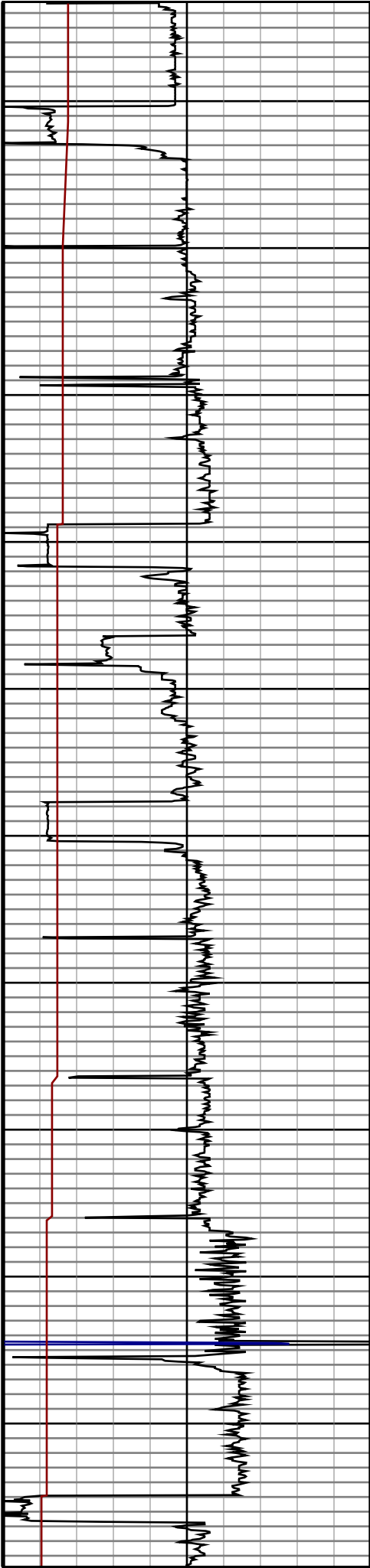
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VS(3540.02) NS(-3520.01) EW(455.97)

#108 MD(9846.00) Inc(89.3) Azm(182.1) TVD(6621.93)
VS(3633.64) NS(-3613.95) EW(452.77)

#109 MD(9940.00) Inc(89.6) Azm(182.1) TVD(6622.83)
VS(3727.23) NS(-3707.89) EW(449.33)

#110 MD(10035.00) Inc(91.0) Azm(181.7) TVD(6622.33)
VS(3821.85) NS(-3802.83) EW(446.18)

#111 MD(10130.00) Inc(89.4) Azm(182.5) TVD(6622.00)
VS(3916.44) NS(-3897.76) EW(442.69)

#112 MD(10223.00) Inc(90.8) Azm(181.9) TVD(6621.84)
VS(4009.02) NS(-3990.69) EW(439.12)

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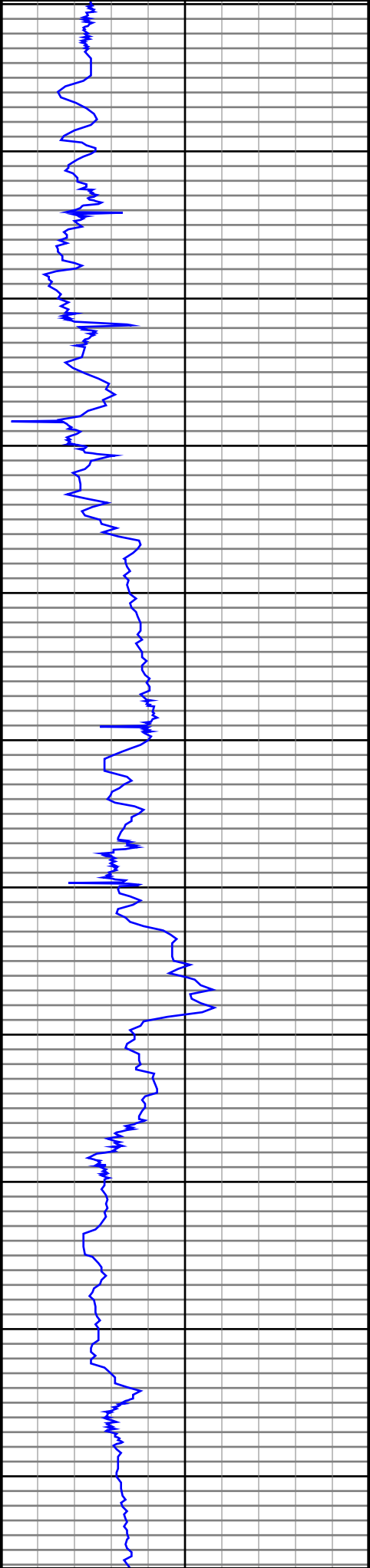
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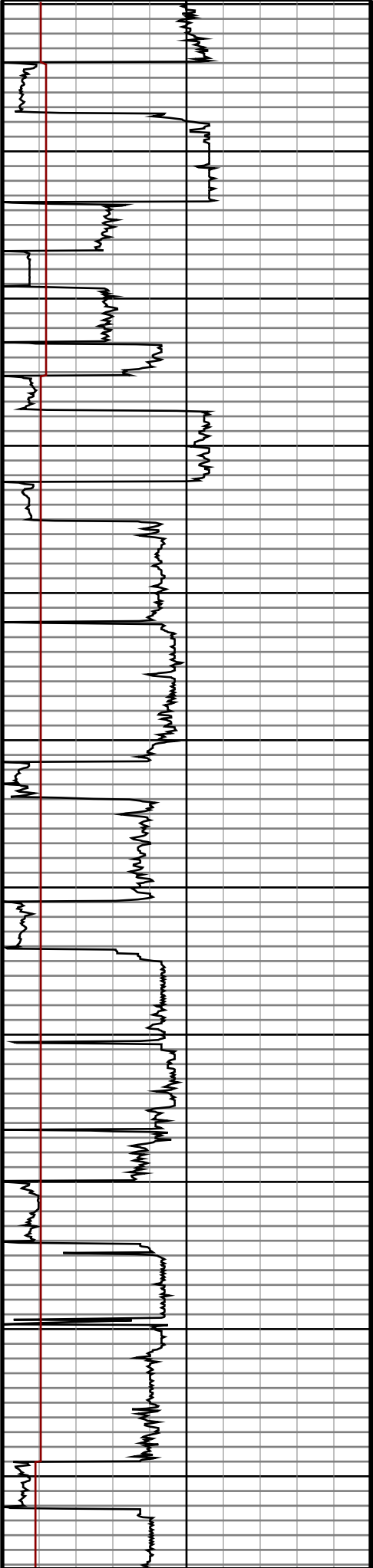
#116 MD(10600.00) Inc(88.4) Azm(179.4) TVD(6629.78)
VS(4385.01) NS(-4367.53) EW(434.65)

#117 MD(10695.00) Inc(87.8) Azm(178.5) TVD(6632.93)
VS(4479.89) NS(-4462.46) EW(436.39)

#118 MD(10790.00) Inc(87.7) Azm(177.2) TVD(6636.66)
VS(4574.80) NS(-4557.31) EW(439.95)



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#119 MD(10885.00) Inc(91.7) Azm(176.6) TVD(6637.16)
VS(4669.78) NS(-4652.15) EW(445.09)

#120 MD(10979.00) Inc(92.1) Azm(177.2) TVD(6634.04)
VS(4763.73) NS(-4745.97) EW(450.17)

#121 MD(11074.00) Inc(91.1) Azm(178.8) TVD(6631.39)
VS(4858.66) NS(-4840.87) EW(453.48)

#122 MD(11169.00) Inc(90.5) Azm(180.4) TVD(6630.06)
VS(4953.54) NS(-4935.85) EW(454.15)

#123 MD(11264.00) Inc(91.2) Azm(179.9) TVD(6628.65)
VS(5048.36) NS(-5030.84) EW(453.90)

#124 MD(11358.00) Inc(91.7) Azm(181.2) TVD(6626.27)
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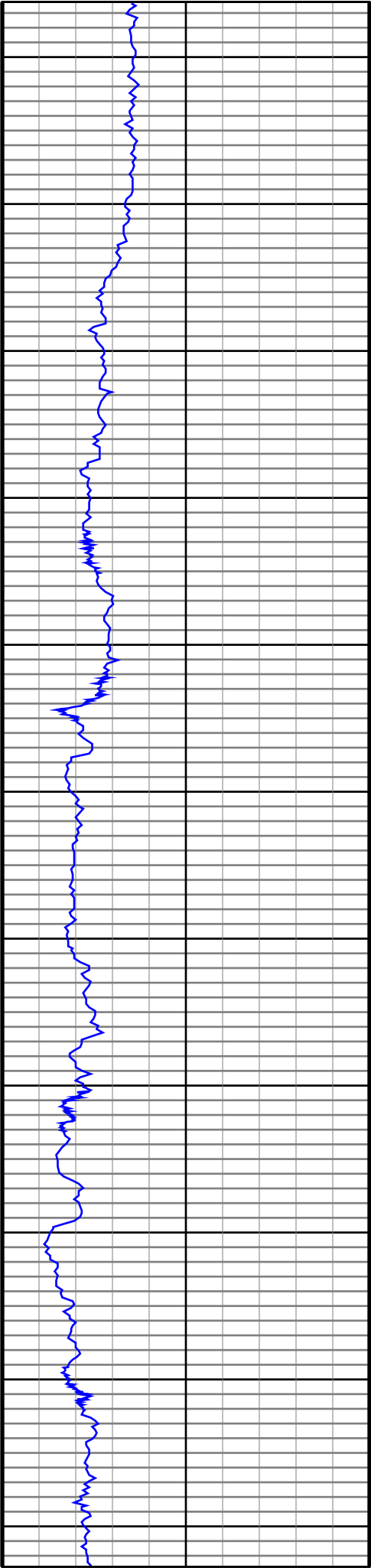
#125 MD(11453.00) Inc(90.5) Azm(181.5) TVD(6624.45)
VS(5236.81) NS(-5219.76) EW(450.76)

#126 MD(11548.00) Inc(91.7) Azm(180.5) TVD(6622.63)
VS(5331.53) NS(-5314.72) EW(449.10)

#127 MD(11643.00) Inc(90.1) Azm(181.2) TVD(6621.13)
VS(5426.28) NS(-5409.70) EW(447.69)

#128 MD(11738.00) Inc(90.8) Azm(180.5) TVD(6620.39)
VS(5521.03) NS(-5504.68) EW(446.28)

#129 MD(11832.00) Inc(88.5) Azm(179.8) TVD(6620.96)
VS(5614.86) NS(-5598.67) EW(446.04)



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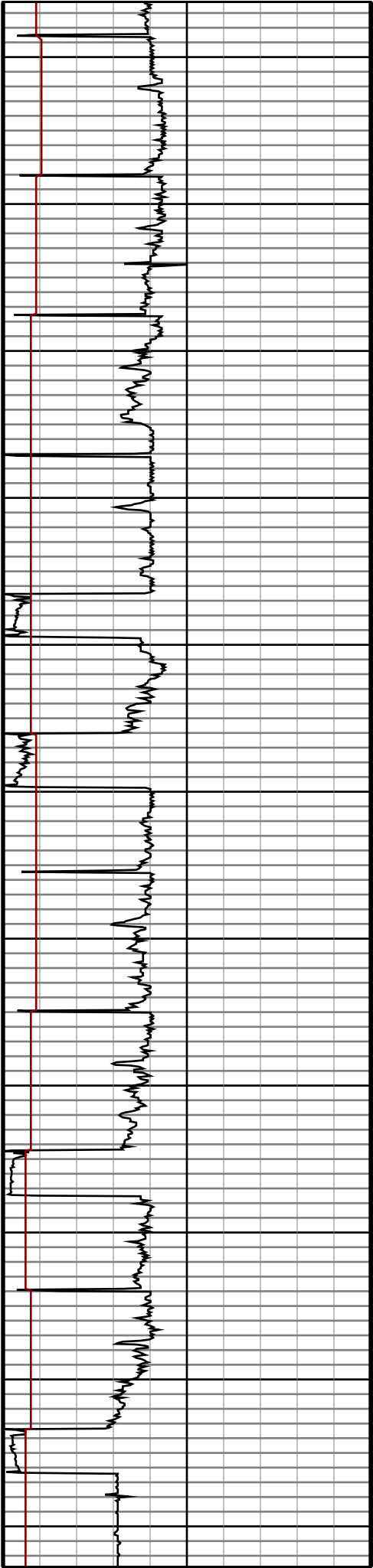
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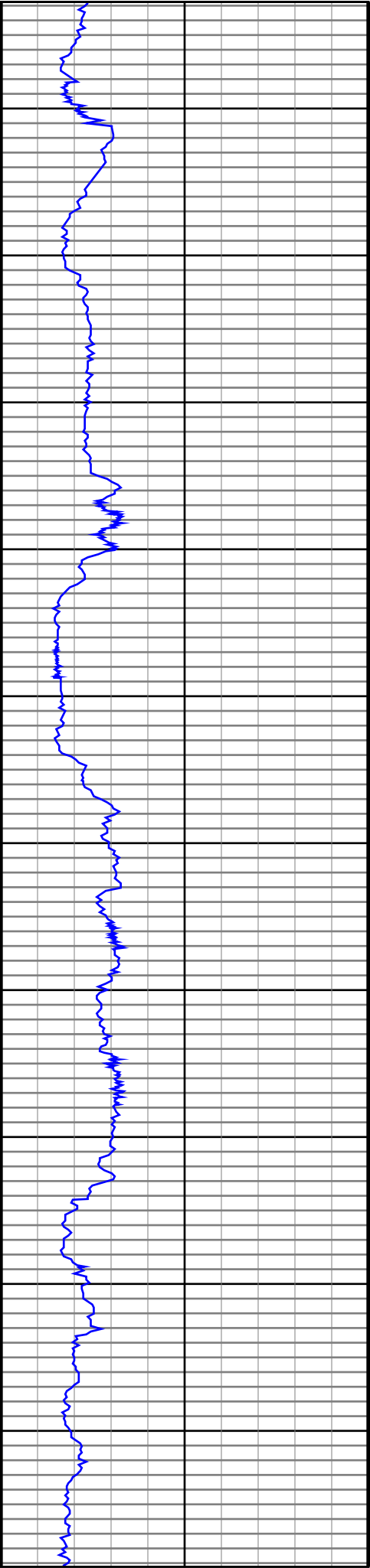
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#130 MD(11927.00) Inc(89.3) Azm(179.6) TVD(6622.79) VS(5709.72) NS(-5693.65) EW(446.53)
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#132 MD(12117.00) Inc(90.8) Azm(178.3) TVD(6622.70) VS(5899.59) NS(-5883.61) EW(450.26)
#133 MD(12212.00) Inc(91.9) Azm(177.6) TVD(6620.46) VS(5994.54) NS(-5978.52) EW(453.66)
#134 MD(12307.00) Inc(91.1) Azm(178.9) TVD(6617.98) VS(6089.47) NS(-6073.44) EW(456.56)
#135 MD(12401.00) Inc(89.1) Azm(180.3) TVD(6617.81) VS(6183.35) NS(-6167.43) EW(457.22)
#136 MD(12496.00) Inc(90.4) Azm(180.4) TVD(6618.23) VS(6278.17) NS(-6262.42) EW(456.64)
#137 MD(12591.00) Inc(91.7) Azm(179.9) TVD(6616.49) VS(6372.99) NS(-6357.40) EW(456.39)
#138 MD(12686.00) Inc(90.3) Azm(181.2) TVD(6614.83) VS(6467.76) NS(-6452.38) EW(455.48)
#139 MD(12781.00) Inc(91.4) Azm(180.6) TVD(6613.42) VS(6562.51) NS(-6547.36) EW(453.98)
#140 MD(12876.00) Inc(89.8) Azm(182.6) TVD(6612.43) VS(6657.16) NS(-6642.31) EW(451.33)



13000

13100

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13300

13400

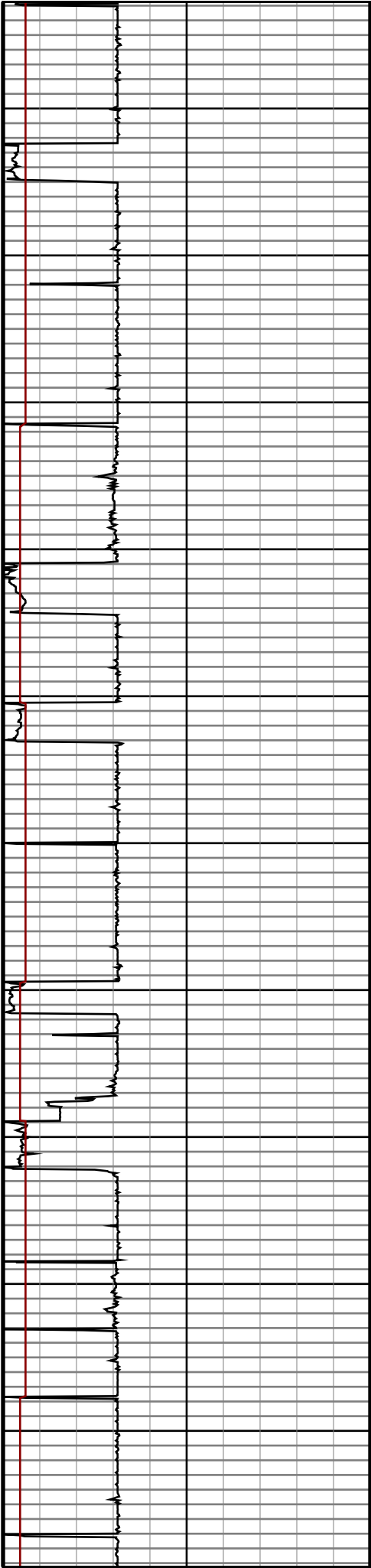
13500

13600

13700

13800

13900



#141 MD(12971.00) Inc(90.6) Azm(182.1) TVD(6612.09)
VS(6751.71) NS(-6737.23) EW(447.44)

#142 MD(13066.00) Inc(89.1) Azm(182.4) TVD(6612.34)
VS(6846.28) NS(-6832.15) EW(443.71)

#143 MD(13160.00) Inc(90.3) Azm(182.6) TVD(6612.83)
VS(6939.81) NS(-6926.06) EW(439.61)

#144 MD(13255.00) Inc(91.7) Azm(182.6) TVD(6611.18)
VS(7034.30) NS(-7020.94) EW(435.30)

#145 MD(13350.00) Inc(89.9) Azm(181.1) TVD(6609.85)
VS(7128.92) NS(-7115.88) EW(432.23)

#146 MD(13445.00) Inc(88.3) Azm(180.2) TVD(6611.34)
VS(7223.68) NS(-7210.86) EW(431.15)

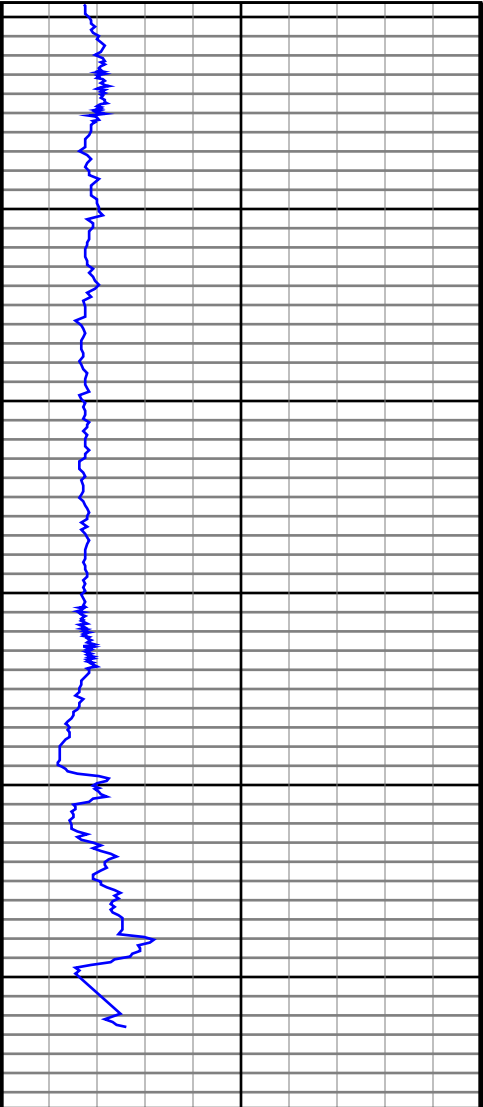
#147 MD(13540.00) Inc(89.3) Azm(180.1) TVD(6613.33)
VS(7318.50) NS(-7305.83) EW(430.91)

#148 MD(13634.00) Inc(90.5) Azm(180.0) TVD(6613.50)
VS(7412.34) NS(-7399.83) EW(430.82)

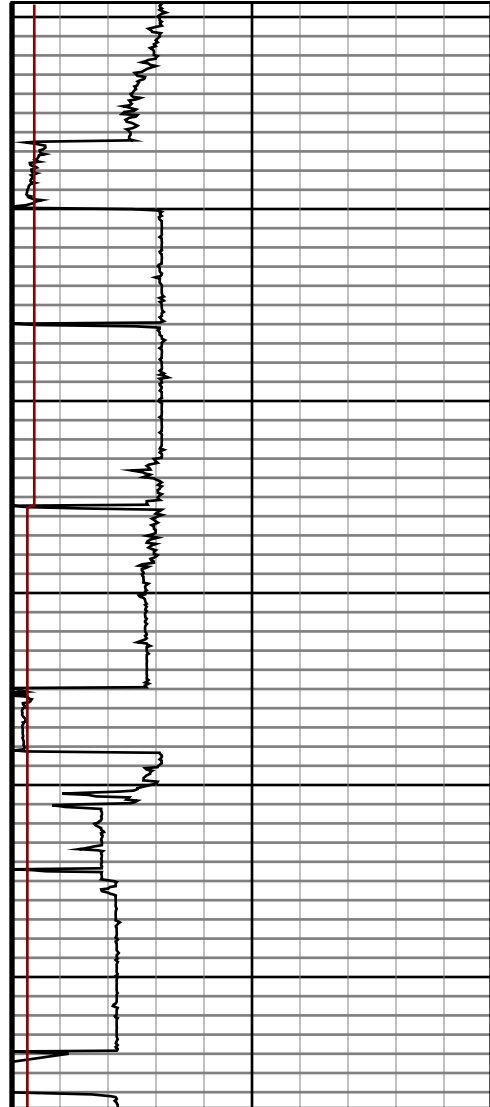
#149 MD(13729.00) Inc(88.1) Azm(179.5) TVD(6614.66)
VS(7507.20) NS(-7494.82) EW(431.24)

#150 MD(13824.00) Inc(88.9) Azm(179.6) TVD(6617.14)
VS(7602.06) NS(-7589.78) EW(431.98)

#151 MD(13919.00) Inc(89.8) Azm(179.1) TVD(6618.22)
VS(7696.96) NS(-7684.77) EW(433.06)



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#152 MD(14013.00) Inc(90.7) Azm(179.2) TVD(6617.81) VS(7790.88) NS(-7778.75) EW(434.46)
#153 MD(14108.00) Inc(88.9) Azm(177.9) TVD(6618.14) VS(7885.83) NS(-7873.72) EW(436.86)
#154 MD(14203.00) Inc(90.5) Azm(178.0) TVD(6618.64) VS(7980.80) NS(-7968.65) EW(440.26)
#155 MD(14297.00) Inc(91.2) Azm(177.4) TVD(6617.25) VS(8074.78) NS(-8062.56) EW(444.03)
#156 MD(14392.00) Inc(89.1) Azm(178.0) TVD(6617.00) VS(8169.76) NS(-8157.48) EW(447.84)
#157 MD(14487.00) Inc(89.5) Azm(178.0) TVD(6618.16) VS(8264.73) NS(-8252.42) EW(451.16)
#158 MD(14568.00) Inc(89.5) Azm(178.0) TVD(6618.86) VS(8345.74) NS(-8333.66) EW(453.66)

0.0 ————— 250.0
250.0 ————— 500.0

Gamma
API

0.0 ————— 800.0
800.0 ————— 1600.0

250.0 ————— 0.0
0.0 ————— 0.0

ROP
0

Temperature
degF